WHISKEY CREEK WATER USERS (PWS 6150024)
SOURCE WATER ASSESSMENT FINAL REPORT

December 3, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment areas and sensitivity factors associated with the wells and springs, and their aquifer characteristics.

This report, *Source Water Assessment for Whiskey Creek Water Users, Idaho*, describes the public drinking water system (PWS), the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Whiskey Creek Water Users (PWS #6150024), located near U.S. Route 34 in Caribou County, is a community drinking water system that consists of one spring which was developed in 1972. The spring is the system's primary source of water, maintaining a 3000-gallon storage reservoir that serves approximately 35 persons through 17 connections.

The potential contaminant sources within the delineation include a major transportation corridor (U.S. Route 34), a surface water source (Bench Canal), and a dairy. If an accidental spill occurred into the transportation corridor or surface water source, inorganic chemical (IOC) contaminants, volatile organic chemical (VOC) contaminants, or synthetic organic chemical (SOC) contaminants could be added to the aquifer system. Herbicides use is considered high in Caribou County, and the spring's delineation exists within a priority area for nitrates. Both factors were considered in the spring's final ratings.

Final spring susceptibility scores are derived from heavily weighting potential contaminant/land use scores and summing them with system construction scores. Therefore, a low rating in one category coupled with a higher rating in the other category results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a spring can get is moderate. Potential contaminants are divided into four categories, IOCs (i.e. nitrates, arsenic), VOCs (i.e. petroleum products), SOCs (i.e. pesticides), and microbial contaminants (i.e. bacteria). As different springs can be subject to various contamination settings, separate scores are given for each type of contaminant.

For the assessment, a review of laboratory tests was conducted using State Drinking Water Information System (SDWIS). No SOCs or VOCs have been detected in the spring. The IOCs, fluoride and nitrate, detected in tested water were below the maximum contaminant level (MCL) for each chemical as set by the EPA. Despite existing in a nitrate priority area, nitrate has been detected in concentrations as high as of 4.02 milligrams per liter (mg/L). Repeat detections of total coliform have occurred in the distribution system eleven times between September 1994 and October 1999. Total coliform bacteria have not been present in the system since.

In terms of total susceptibility, the spring rated high for IOCs, moderate for VOCs, SOCs and microbial contaminants. The system construction rated moderate, the potential contaminant/land use scores were moderate for IOCs, VOCs, and SOCs, and low for microbial contaminants.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Whiskey Creek Water Users, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). As land uses within most of the source water assessment areas are outside the direct jurisdiction of the Whiskey Creek Water Users, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, and the Caribou County Soil and Water Conservation District.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR
WHISKEY CREEK WATER USERS, NITER, IDAHO

Section 1. Introduction - Basis for Assessment

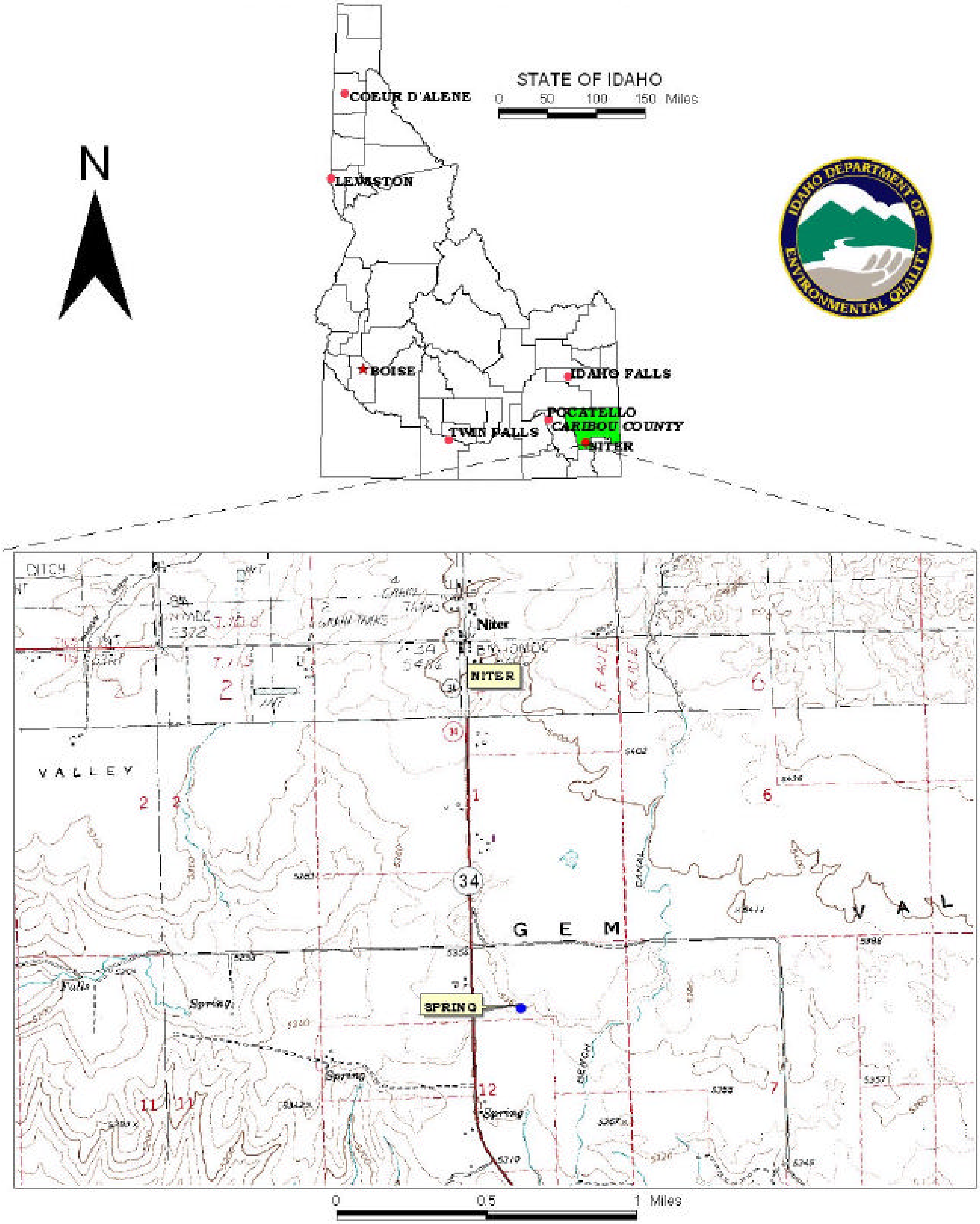
The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the spring, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system (PWS) is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location of Whiskey Creek Water Users



Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Whiskey Creek Water Users (PWS #6150024), located near U.S. Route 34 in Caribou County (Figure 1), is a community drinking water system that consists of one spring which was developed in 1972. The spring is the system's primary source of water, maintaining a 3000-gallon storage reservoir that serves approximately 35 persons through 17 connections. No SOCs or VOCs have been detected in the spring. The IOCs, fluoride and nitrate, detected in tested water were below the maximum contaminant level (MCL) for each chemical as set by the EPA. Despite existing in a nitrate priority area, nitrate has been detected in concentrations as high as of 4.02 milligrams per liter (mg/L). Repeat detections of total coliform have occurred in the distribution system eleven times between September 1994 and October 1999. Total coliform bacteria have not been present in the system since.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well or spring that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well or flowing spring) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the PWS's zones of contribution. WGI used a conceptual computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with Gem Valley – Gentile Valley hydrologic province in the vicinity of the Whiskey Creek Water Users. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records, and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

The Bear River originates in the Uinta Mountains of northern Utah and winds its way through over 500 miles of Wyoming, Idaho, and Utah to terminate in a freshwater bay of the Great Salt Lake just 90 miles west of its source (Dion, 1969, p. 6). The Bear River enters Idaho near Border, Wyoming and flows along the north edge of the Bear River Plateau. Flowing north through the Bear River – Dingle Swamp hydrologic province, it passes into the Soda Springs hydrologic province east of the Bear River Range. Upon entering the Gem Valley – Gentile Valley hydrologic province, it swings south. Now west of the Bear River Range, the river passes through the Oneida Narrows into the Cache Valley hydrologic province. Over most of its course through Idaho, the Bear River is gaining and in direct hydraulic communication with the major aquifer systems of the four hydrologic provinces. The exception is a small reach between the cities of Alexander and Grace where it is generally losing and is perched over the regional fractured basalt aquifer (Dion, 1969, p. 30).

Ground water in the Bear River Basin is found in Holocene alluvium, Pleistocene basalt, and rocks of the "Pliocene (?)" [sic] Salt Lake Formation, pre-Tertiary undifferentiated bedrock, and possibly the "Eocene (?)" [sic] Wasatch Formation (Dion, 1969, pp. 15 and 16). Rocks of the Salt Lake Formation, which include freshwater limestone, tuffaceous sandstone, rhyolite tuff and poorly-consolidated conglomerate, outcrop along the major valley margins and may underlie the valley-fill alluvium (Dion, 1969, pp. 16 and 17). Many of the wells drilled into this formation do not yield water. The few wells that do produce water yield as much as 1,800 gallons/minute from beds of sandstone and conglomerate.

The Wasatch Formation is restricted to the Bear Lake Plateau and small areas northwest of Bear Lake (Dion, 1969, p. 17). The formation is composed largely of tightly cemented conglomerate and sandstone with smaller amounts of shale, limestone, and tuff. The primary pore space is typically impermeable. Water movement may occur through joints and fractures or more permeable zones that are thought to exist along the relatively flat-lying formation (Dion, 1969, p. 17). Springs occur at the margins of the formation.

Precipitation in the basin ranges from 10 inches/year on the floor of Bear Lake Valley to over 45 inches/year on the Bear River Range (Dion, 1969, pp. VII and 11). Applied over the entire basin, precipitation amounts to approximately 2.3 million acre-feet annually. Precipitation is also the principal source of recharge to the basin's aquifers in conjunction with spring snowmelt and runoff, irrigation seepage, and canal losses.

Natural ground water discharge is by flow to the Bear River, springs, seeps along river banks, and evapotranspiration in large marshy areas (Dion, 1969, p. VIII). Some discharge may also occur by way of underflow to the Portneuf River drainage through basalt flows at Tenmile pass and near Soda Point.

Ground water is obtained from both springs and wells in the Bear River Basin. Hundreds of springs issue primarily from fractures and solution openings in the bedrock on the margins of the basin (Dion, 1969, p. 47). Water production from wells in the four hydrologic provinces is primarily from alluvial and basalt aquifers; however, some wells tap conglomerate, sandstone, limestone and shale aquifers of the Salt Lake and possibly the Wasatch formations (Dion, 1969, p. VII).

Hydrologic Province

The Gem Valley – Gentile Valley hydrologic province in which the Whiskey Creek Water Users' spring resides, occupies approximately 144 square miles west of the Soda Springs hydrologic province. The Basin and Range physiographic province is north to south trending and is bounded on the east by the Bear River Range and on the west by the Portneuf Range. Average annual precipitation on the valley floor is assumed to be of similar magnitude to the values for Soda Springs and Cache Valley because of proximity and intermediate elevation.

The Gem and Gentile Valley floors consist of Quaternary gravels, sands, silts, and clays, and Quaternary and Tertiary olivine basalt flows. The sediments are more prevalent in the Gentile Valley and are the primary water-producing units. The basalt flows found primarily in Gem Valley overlie and interfinger sediment deposits (Dion, 1969, p. 16). The basalts are the principal aquifer in Gem Valley.

A broad northwest trending mound of water forms a ground water divide in the basalt aquifer north and west of the town of Alexander (Dion, 1969, p. 19 and Figure 5, and Norton, 1981, Figure 5). Water north of the divide flows to the Snake River Basin, and water to the south flows to the Bear River Basin. The general ground water flow direction south of the divide is to the Bear River.

The primary source of recharge to the basalt aquifer is underflow from the aquifer in the Soda Springs hydrologic province. Other sources are precipitation on the valley floor and the mountains, percolation from irrigation, canal leakage, and stream losses (Norton, 1981, p. 11, and Dion, 1974, p.19). The alluvial aquifer in Gentile Valley is recharged by surface water along the valley margins and by precipitation on the alluvium. Ground water is discharged from both aquifers by the hundreds of springs and seeps along the Bear River, evapotranspiration, underflow to the Portneuf Valley, and wells (Norton, 1981, p. 11, and Dion, 1969, p. 19).

Spring Delineation Methods

Delineation of the wellhead protection area for a spring involves special consideration. Hydrogeologic setting is foremost among the factors that control the shape and extent of the capture zone. A spring resulting from the presence of a high permeability fracture extending to great depth will have a much different capture zone than a depression spring formed where the ground surface intersects the water table in a unconsolidated aquifer. The latter can be reasonably modeled as either a well or an internal constant head boundary.

In many cases, however, the methods commonly used to delineate protection areas for water supply wells are not applicable (Jensen et al., 1997). Application of the refined method using WhAEM (Kraemer et al., 2000), for instance, may not be appropriate for a fracture or tubular spring producing from an aquifer that displays a high degree of heterogeneity and anisotropy. Techniques that are most applicable to the springs within the scope of this report are the topographic, refined, and calculated fixed-radius methods. Hydrogeologic mapping techniques have been useful in characterizing the hydrogeologic setting and the zone of contribution to springs (Jensen et al., 1997, pp. 6-7). Other techniques such as tracer and isotope studies, potentiometric surface mapping, geochemical characterization, and geophysical survey interpretation require data that are not available without additional fieldwork.

Hydrogeologic mapping techniques include hydrogeologic mapping, fracture-trace analysis, topographic method, and geomorphic analysis. The hydrogeologic mapping method can be used to identify lithologic units that may provide water to springs, low-permeability units and/or faults that may form aquifer boundaries or preferential pathways, fracture orientation or karst features that can control ground water flow, and potential recharge areas. The information obtained from geologic maps can be sufficient to indicate the zone of contribution. The utility of this method is dependent on the accuracy and the degree to which the lithologic units of interest are exposed. Fracture-trace analysis can assist in identifying flow boundaries or preferential flow paths. The topographic method involves the use of topographic maps to locate boundaries of surface drainage basins around springs. Geomorphic analysis uses both geologic and topographic analysis and applies geomorphic principles to infer subsurface structures from landforms (Jensen et al., 1997, pp. 7-8).

The refined, topographic, and calculated fixed-radius methods were used to delineate capture zones for PWS springs in southeast Idaho. Springs located within hydrologic provinces and within previously simulated aquifers were delineated using the refined method. The refined method (using the uniform flow option in WhAEM) was also used for springs that generally lacked hydrologic data but had a reasonable basis for predicting ground water flow direction and were located outside previously simulated flow domains.

Refined Method

The uniform flow option of WhAEM was used to delineate the source areas for seven springs that had some basis for estimating the flow direction, were located within Cache and Gem/Gentile Valleys, and had a general lack of other hydrogeologic data. Required input for the uniform flow option includes hydraulic gradient, hydraulic conductivity, aquifer thickness, and flow direction, but it does not require the explicit definition of hydrologic boundaries. The creation of a uniform flow model as used in this delineation effort involved only two of the four main elements of the refined method. Model Calibration (element 2) and Sensitivity Analysis (element 3) were not performed because there were no water level data with which to calibrate the models.

For the uniform flow models it is assumed that the PWS springs issue from sedimentary rock, due to the prevalence of this material throughout the mountains of southern Idaho. For this reason, the hydraulic conductivity, effective porosity, and hydraulic gradient used in the models are the default values presented in Table F-3 of the Idaho Wellhead Protection Plan for mixed volcanic and sedimentary rocks, primarily sedimentary rocks (IDEQ, 1997, p. F-6). The average discharge rates reported by the owner/operator or the State of Idaho Public Water Supply Inventory Form were used for the Whiskey Creek Water Users spring. A base elevation of 0 (zero) feet-mean sea level was used to simplify the modeling process and had no impact on the size or shape of the resulting source areas. To maintain conservatism, no areal recharge was applied in any of the uniform flow simulations.

The delineated source water assessment area for the Whiskey Creek Water Users spring can best be described as three concentric circles that total approximately 3,300 feet in diameter (Figure 2). The actual data used by WGI in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineation areas.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in May and August 2002. The first phase involved identifying and documenting potential contaminant sources within the Whiskey Creek Water Users source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential contaminant sources in the delineated areas. This was completed with the assistance of Blaine Mickelson. Only one point source, a dairy (Figure 2, Table 1), was identified in the DEQ databases within the Whiskey Creek Water Users spring delineation, and no additional potential contaminant sources were identified by the operator.

Table 1. Whiskey Creek Water Users Spring, Potential Contaminant Source Inventory

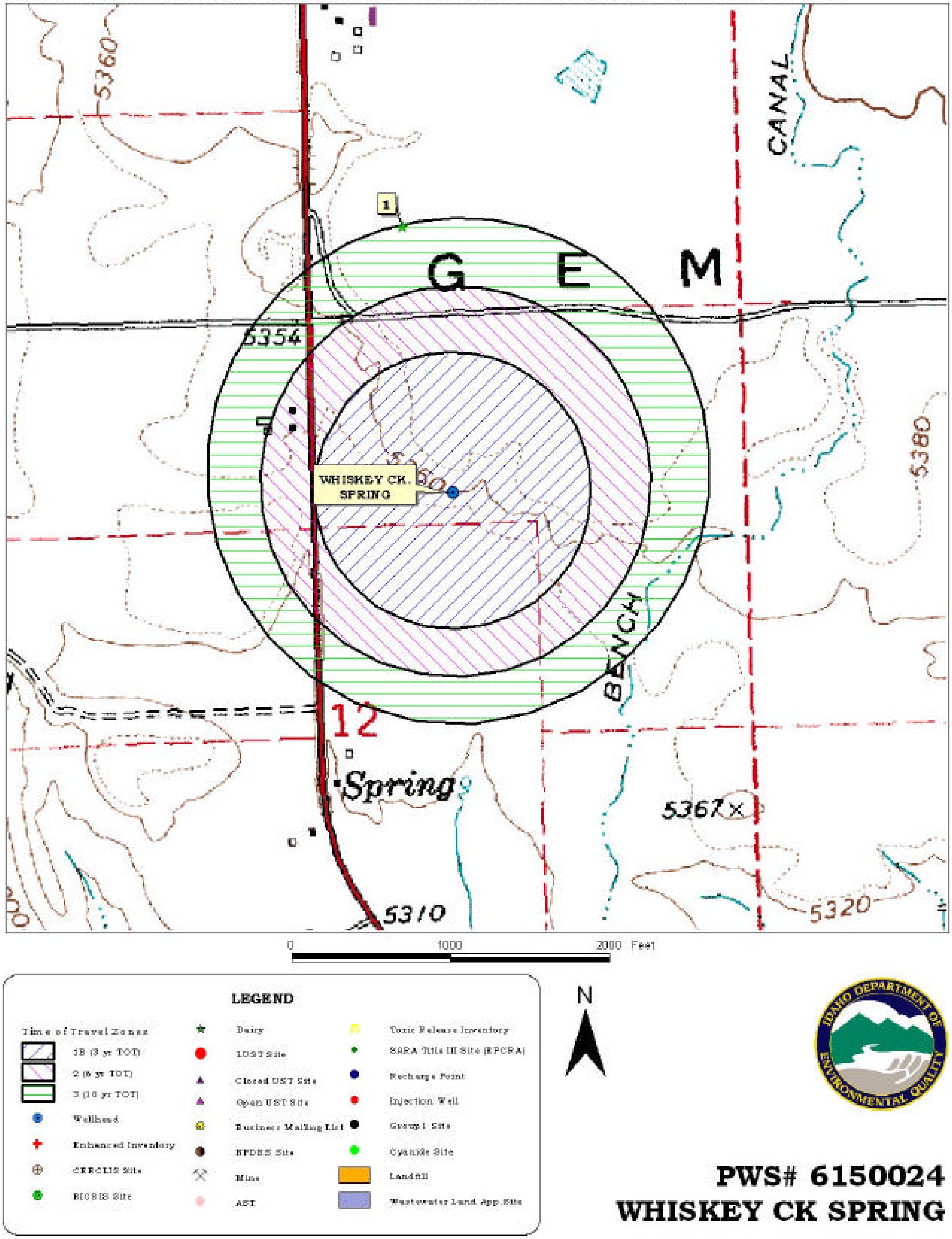
Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Dairy; 200-500 cows	6-10 YR	Database Search	IOC
	U.S. Route 34	3-10 YR	GIS Map	IOC, VOC, SOC
	Bench Canal	6-10 YR	GIS Map	IOC, VOC, SOC

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

The spring's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: construction, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

FIGURE 2. Whiskey Creek Water Users Delineation Map and Potential Contaminant Source Locations



Spring Construction

Spring construction scores are determined by evaluating whether the spring has been constructed according to Idaho Code (IDAPA 58.01.08.04) and if the spring's water is exposed to any potential contaminants from the time it exits the bedrock to when it enters the distribution system. If the spring's intake structure, infiltration gallery, and housing are located and constructed in such a manner as to be permanent and protect it from all potential contaminants, is contained within a fenced area of at least 100 feet in diameter (sanitary setback), and is protected from all surface water by diversions, berms, etc., then Idaho Code is being met and the score will be lower. If the spring's water comes in contact with the open atmosphere before it enters the distribution system, it receives a higher score. Likewise, if the spring's water is piped directly from the bedrock to the distribution system or is collected in a protected spring box without any contact to potential surface-related contaminants, the score is lower.

The spring was developed in 1972. According to the 1999 Southeastern District Health Department sanitary survey, the spring was excavated back into the hillside and a concrete spring box was cast around it. Twelve-inch drain tile was placed into the excavated area and approximately 100 yards of clean gravel was used to bury the spring's collection system. Once buried, the spring box was covered with approximately 12 to 15 feet of heavy soil.

Whiskey Creek Water Users spring rated moderate for construction. The water exits the bedrock, enters a buried spring box, and flows by gravity into the distribution system without any contact with the atmosphere or surface-related potential contaminants. The score increased because it is unknown if the area within 100 feet of the spring is in legal control of the Whiskey Creek Water Users, and fenced to restrict access. In addition, it is unknown if surface water (spring-time runoff, rain, etc.) is being diverted away from the spring.

Potential Contaminant Source and Land Use

The spring rated high for IOCs (i.e. nitrates, arsenic), moderate for VOCs (i.e. petroleum products) and SOCs (i.e. pesticides), and low for microbial contaminants (i.e. bacteria). Potential contaminant sources that exist within the delineation include U.S. Route 34, the Bench Canal, and a dairy. In addition, the delineation exists within a nitrate priority area, and the Caribou County herbicide use is considered high.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a confirmed detection of total coliform bacteria or fecal coliform bacteria at the spring will automatically give a high susceptibility rating to the spring, despite the land use of the area, because a pathway for contamination already exists. Additionally, potential contaminant sources within 100 feet of a spring will automatically lead to a high susceptibility rating. System construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking.

Susceptibility Summary

No SOCs or VOCs have been detected in the spring. The IOCs, fluoride and nitrate, detected in tested water were below the MCL for each chemical as set by the EPA. Despite existing in a nitrate priority area, nitrate has been detected in concentrations as high as of 4.02 mg/L. Repeat detections of total coliform have occurred in the distribution system eleven times between September 1994 and October 1999. Total coliform bacteria have not been present in the system since.

In terms of total susceptibility, the spring rated high for IOCs, moderate for VOCs, SOCs and microbial contaminants. The system construction rated moderate, the potential contaminant/land use scores were moderate for IOCs, VOCs, and SOCs, and low for microbial contaminants (Table 2).

Table 2. Summary of Whiskey Creek Water Users Susceptibility Evaluation

Susceptibility Scores[1]									
	Potential Contaminant Inventory/Land Use				System Construction	**Final Susceptibility Ranking**			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Spring	M	M	M	L	M	H	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the Whiskey Creek Water Users, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. No potential contaminants (livestock, pesticides, paint, fuel, cleaning supplies, etc.) should be stored or applied within 100 feet of the spring. As land uses within most of the source water assessment areas are outside the direct jurisdiction of the Whiskey Creek Water Users, making collaboration and partnerships with state and local agencies, and industrial and commercial groups is important to ensure future land uses are protective of ground water quality.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation contains some residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities within the delineation should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, and the Caribou County Soil and Water Conservation District.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office (208) 236-6160

State DEQ Office (208) 373-0502

Website: www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mailto:mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLA – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

References Cited

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Attachment A

Whiskey Creek Water Users

Susceptibility Analysis Worksheet

Susceptibility Analysis Formulas

Formula for Spring Sources

The final spring scores for the susceptibility analysis were determined using the following formulas:

1. VOC/SOC/IOC/ Final Score = (Potential Contaminant/Land Use X 0.818) + System Construction

2. Microbial Final Score = (Potential Contaminant/Land Use X 1.125) + System Construction

Final Susceptibility Scoring:

0 - 7 Low Susceptibility
8 - 15 Moderate Susceptibility
≥ 16 High Susceptibility

Spring Water Susceptibility Report   Public Water System Name : WHISKEY CREEK WATER USERS   Well# : SPRING
Public Water System Number 6150024   09/13/2002 11:39:19 AM

1. System Construction

		SCORE
Intake structure properly constructed	NO	1
Is the water first collected from an underground source Yes=spring developed to collect water from beneath the ground; lower score No=water collected after it contacts the atmosphere or unknown; higher score	YES	0
Total System Construction Score		1

2. Potential Contaminant / Land Use - ZONE 1A

		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	YES	4	0	0	
4 Points Maximum		4	0	0	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	0	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		10	4	4	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		20	14	16	6
4. Final Susceptibility Source Score		17	12	14	8
5. Final Well Ranking		High	Moderate	Moderate	Moderate